

CLAIMS

We claim:

1. In an encoder, a computer-implemented method comprising:
getting effect parameters for one or more synthesized images derived from one or more original still images;
compressing the one or more original still images; and
outputting the effect parameters and the one or more compressed original still images, thereby producing output for a sequence of vivid video comprising the one or more synthesized images.
2. The method of claim 1 wherein the effect parameters include affine coefficients for panning, zooming, and/or rotation effects.
3. The method of claim 1 wherein the effect parameters include coefficients for fading or blending effects.
4. The method of claim 1 further comprising encoding the effect parameters to reduce the number of effect parameters that are output.
5. The method of claim 4 further comprising outputting one or more bits that indicate the number of effect parameters that are output for panning, zooming, and/or rotation effects.
6. The method of claim 4 further comprising outputting one or more bits that indicate whether the output includes effect parameters for fading or blending effects.
7. The method of claim 4 further comprising outputting one or more bits that indicate a number of sets of effect parameters for a given synthesized image of the one or more synthesized images, wherein each of the one or more original still images that contributes to the given synthesized image has a different set of effect parameters.
8. The method of claim 1 wherein at least one of the one or more synthesized images is derived from two of the one or more original still images.

9. The method of claim 1 further comprising combining the output with an audio track for the sequence of vivid video.

10. The method of claim 1 further comprising delivering the output by streaming, file transfer, or downloading.

11. The method of claim 1 wherein the getting the effect parameters comprises receiving user input exactly specifying the effect parameters.

12. The method of claim 1 wherein the getting the effect parameters comprises receiving information indicating the effect parameters from an application.

13. The method of claim 1 wherein the outputting comprises processing the one or more original still images as intra video frames and processing the one or more synthesized images as predicted video frames.

14. The method of claim 1 further comprising outputting first dimensions for the one or more original still images and second dimensions for a target view window area.

15. A computer-readable medium storing computer-executable instructions for causing the encoder to perform the method of claim 1.

16. An encoder comprising:

an effect parameterizer for getting effect parameters for one or more synthesized images, wherein the effect parameters include affine coefficients for panning; zooming, and/or rotation effects for at least one of the one or more synthesized images, and wherein the effect parameters further include fading coefficients for fading or blending effects for at least one of the one or more synthesized images;

a still image compressor for compressing one or more original still images; and

a multiplexer for outputting the effect parameters and the one or more compressed original still images.

17. The encoder of claim 16 wherein the effect parameterizer reduces the number of effect parameters that are output.

18. The encoder of claim 16 wherein the multiplexer produces output for a sequence of vivid video comprising the one or more synthesized images.

19. In a decoder, a computer-implemented method comprising:
receiving output for a sequence of vivid video comprising one or more synthesized images, the output including one or more compressed original still images and effect parameters for the one or more synthesized images;
decompressing the one or more compressed original still images; and
composing the one or more synthesized images based at least in part upon the effect parameters and the one or more decompressed original still images.

20. The method of claim 19 wherein the effect parameters include affine coefficients for panning, zooming, and/or rotation effects.

21. The method of claim 19 wherein the effect parameters include coefficients for fading or blending effects.

22. The method of claim 19 further comprising determining which of the effect parameters are included in the output based upon one or more bits in the output.

23. The method of claim 22 wherein the one or more bits indicate the number of effect parameters that are output for panning, zooming, and/or rotation effects.

24. The method of claim 22 wherein the one or more bits indicate whether the output includes effect parameters for fading or blending effects.

25. The method of claim 22 wherein the one or more bits indicate a number of sets of effect parameters for a given synthesized image of the one or more synthesized images, wherein each of the one or more original still images that contributes to the given synthesized image has a different set of effect parameters.

26. The method of claim 19 further comprising receiving first dimensions for the one or more original still images and second dimensions for a target view window area.

27. The method of claim 19 wherein the receiving comprises processing the one or more original still images as intra video frames and processing the one or more synthesized images as predicted video frames.

28. The method of claim 19 wherein the composing comprises
computing a first component image based upon first transform parameters of the effect parameters and a first one of the one or more decompressed original still images.

29. The method of claim 28 wherein the composing further comprises:
computing a second component image based upon second transform parameters of the effect parameters and a second one of the one or more decompressed original still images; and
blending the first and second component images according to blending parameters of the effect parameters.

30. The method of claim 19 further comprising buffering up to n of the one or more decompressed original still images, wherein the oldest one of the one or more decompressed original still images is discarded as necessary for the newest one of the decompressed original still images.

31. The method of claim 30 wherein n is two.

32. A computer-readable medium storing computer-executable instructions for causing the decoder to perform the method of claim 19.

33. A decoder comprising:
a demultiplexer for receiving one or more compressed original still images and effect parameters;
a still image decompressor for decompressing the one or more compressed original still images;

one or more transformers for computing one or more component images for each of one or more synthesized images based upon the one or more decompressed original still images and the effect parameters; and

a blender for combining the one or more component images for each of the one or more synthesized images.

34. The decoder of claim 33 wherein the effect parameters include affine coefficients for panning, zooming, and/or rotation effects, and wherein the one or more transformers apply the affine coefficients during the computing the one or more component images.

35. The decoder of claim 33 wherein the effect parameters include coefficients for fading or blending effects, and wherein the blender applies the coefficients during the combining.

36. The decoder of claim 33 wherein the demultiplexer receives output for a sequence of vivid video comprising the one or more synthesized images.

37. In a computer system, a method comprising:

for each of one or more output frames,

providing a header structure for the output frame to an encoder, wherein the header structure includes:

a set of control flags for the output frame, wherein the control flags give indications including (a) presence or absence of image data for an I-frame used for the output frame and (b) which of up to two I-frames to use for the output frame;

up to two sets of input flags for the output frame, wherein the input flags give indications including presence or absence of effect parameters to use for the output frame;

up to two sets of effect parameters for the output frame, wherein each of the two sets of effect parameters is to be applied to a different I-frame, and wherein members present in each of the two sets of effect parameters are indicated in a corresponding one of the sets of input flags for the output frame;

if the set of control flags for the output frame indicates the presence of image data, providing the image data.

38. A computer-readable medium storing computer-executable instructions for causing the computer system to perform the method of claim 37.